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PAPERS

IN

AGRICULTURE.

AGRICULTURE.

THE GOLD MEDAL, being the Premium offered for planting ACORNS, was this Session adjudged to the Right Honourable the MARQUIS of TITCHFIELD, of Grosvenor-Street, from whom the following Account and Certificate were received.

SIR,

THIS is to certify, That between October 1798, and April 1799, the following pieces of Land were sown with Acorns, viz.

One piece of land, in quantity thirty-four acres, was sown with one thousand and eighty-eight bushels of Acorns, in drills of about twenty-four inches apart; the land was previously prepared by a turnip-fallow, and at the same time that the

the Acorns were sown, it was sown with rye broad-cast, which produced a good crop, and the Oak-plants have a thriving and healthy appearance.

The soil is light sand, with a very small mixture of gravel; part of it had been sown with turnips in 1797; and the remainder, which had been too much cropped, was worn-out grass, very full of weeds. The whole was fallowed in the autumn of that year, and in the summer following was repeatedly ploughed and harrowed; and, in short, put into perfect order for turnips, which were manured with malt combs, at the rate of ten quarters per acre, except where turnips had been sown the year before, and which therefore received a smaller dressing of malt combs. The turnips were hoed only once; they were a tolerable crop, and were begun to be eaten off by sheep in the month of November. As fast as the turnips were eaten, the land was ploughed and harrowed, and rye was

ploughed

ploughed in by a second ploughing. The Acorns were sown at the rate of thirty-two bushels per acre, in every third furrow, and covered by the fourth, and they stood in rows from eighteen to twenty-four inches asunder: the rye did not require weeding; and when reaped, was carried by hand to vacant places, from whence it was carted. The rye stubble is supposed to have been a great protection to the young plants, which have not suffered either by frost or drought.

Another piece of land, in quantity eleven acres, was sown with three hundred and eighty-four bushels of Acorns, broad-cast; the land was previously prepared by ploughing only, and at the same time it was sown with rye, which did not produce a good crop. The Oak-plants have a very healthy appearance. This plantation is situated upon a part of Sherwood Forest lately inclosed, the soil of which is light and gravelly, and has lately

lately been cleared of old Oaks. It was ploughed only once, and sown at the end of October with rye and acorns, at the rate of twenty-four bushels per acre, in the same manner as that before described; but from want of tillage it was left in a very rough state, and the rye was so bad a crop as not to be worth reaping. The Acorns, however, grew as well as could be desired; this year they appear to have suffered from the grub.

A third piece of land, in quantity four acres and a half, was sown with two hundred and eight bushels of Acorns, some in beds of forty-eight inches wide, and furrows in each bed, and some in drills of nine inches and a half apart; the land was previously prepared by trenching. Those sown in beds grow very well, those in drills extremely ill.

This plantation is on a clay soil, with strong patches of gravel: the land was trenched in the years 1797 and 1798 from old

old grass, and was the greatest part sown with acorns at the rate of forty-eight bushels per acre, in beds, which grew perfectly well. Upon a small part of the land, which had been sown as it had been trenched, without being thrown up into beds, the plants do not thrive The sowing of this plantation was begun in October 1798, and was not finished till March 1799.

It was necessary, during the winter and spring succeeding the sowing of the Acorns, to employ persons to frighten away the crows, which otherwise would have thinned the crop very much.

I am, SIR,

Your humble Servant,

ROBERT MEE.

This

THIS is to certify, That the pieces of land sown with Acorns, named in the annexed Paper, were,

First, One piece, upwards of thirty-four acres, situated in the parish of Norton Cuckney, in the county of Nottingham.

Secondly, One piece, upwards of eleven acres, situated in the parish of Sutton in Ashfield, vulgarly called Thieves Wood, in the same county.

Thirdly, A piece of land, in the liberty of Welbeck, upwards of four acres and a half, and in the same county.

The whole were sown by the directions of the Marquis of Titchfield.

ROBERT MEE, Woodman.

THIS is to certify also, That the several Plantations above-mentioned are properly fenced and secured against cattle.

ROBERT MEE, Woodman.
SCOTT TITCHFIELD.

Nov. 1, 1799.

SIR,

YOUR letter of the 31st of January, I last night received; in answer to which I have to assure you, that I did sign a Certificate in November last, by which is shown, that the Marquis of Titchfield had sown forty-nine and a half acres of land between October 1798, and April 1799. In answer to your next question, whether there were at least three hundred young Oaks growing on each acre, I have to inform you, that there is not a single acre, in any of the plantations, but what has many thousands of young Oak-plants growing upon it.

I further beg leave to state to you, as below, how many are counted and growing on two square yards, in each plantation, the situation averaged as near as possible.

In Lord Woodstock's plantation, in Norton, there are, on two square yards, 306 Oak-plants; which, multiplied by

4840

4840 (the square yards in an acre), the product will be 1,481,040, growing on two acres.

In Thieves Wood plantation, at Sutton in Ashfield, there are, on two square yards, 143 Oak-plants; which, multiplied as above, the product will be 692,120, growing on two acres.

In Pope's plantation, in Welbeck, there are, on two square yards, 428 Oak-plants; which, multiplied as before, will be 2,071,520, growing on two acres.

I am, SIR,

Your most obedient Servant,

ROBERT MEE.

Norton,
Feb. 10, 1800.

Mr. TAYLOR.

The

The GOLD MEDAL, being the Premium offered for planting LARCH-TREES, was this Session adjudged to THOMAS JOHNES, M. P. of Hafod, from whom the following Papers were received.

Account of Larch-Trees planted by Thomas Johnes, Esq. of Hafod, in Cardiganshire.

FROM June 1796, to June 1797, four hundred thousand Larches were planted, of which 300,000 were two-years-old seedlings, 85,000 which had been transplanted one year, and 15,000 which had been three years transplanted.

The two-years-old seedling Larches were planted at two feet asunder; those which had been one year transplanted, were planted at two feet and a half, and the others at three to three feet and a half asunder.

I look upon the two-years-old seedling Larches as preferable to any other sizes

for planting high grounds, as the winds make little or no impression upon their tops before their roots get properly fixed in the ground.

The above plantation-grounds were all properly inclosed before any of the trees were planted.

The greatest part of the plantations is fenced with a stone wall, five feet high; the remainder with a turf-fence, the same height, with a dead hedge, and willows planted on the top.

The above plantations are doing extremely well, and the young trees have made good shoots during the last summer.

JAMES TODD, Gardener.

THIS is to certify, That Thomas Johnes, Esq. has planted, on his estate at Hafod, in the county of Cardigan, the above number of trees as already specified; and that I have walked over the plantations with the gardener, and found

found the same in a thriving state, very few of the plants having failed. The plantations are effectually fenced and secured to grow timber; as witness my hand, this 27th day of November, 1799.

LEWIS EVANS,
Minister of Eglwys Newydd.

Mr. TAYLOR.

The GOLD MEDAL, being the Premium offered for planting TIMBER-TREES, was this Session adjudged to the Reverend WILLIAM SMITH, A. M. of Craike, near Easingwold, in the county of York, from whom the following Account and Certificate were received.

SIR,

HAVING, in the years 1796 and 1797, made a plantation of different kinds of Forest-Trees, upon a piece of moor-land, in the township of Flaxton, in the North Riding of the county of York, and which contains eleven acres, I am induced to present to the Society for the Encouragement of Arts, &c. a statement of it, together with the expence, and such remarks as have appeared to me to deserve attention.

Should

Should the Society consider the inclosed as entitled to their Honorary Premium, I shall be highly flattered by such a mark of their approbation.

I remain,

SIR,

Your obedient Servant,

PHILO-DENDRON.

A Statement of the number of Trees planted, and Expence in a Plantation made upon Flaxton-Moor, in the years 1796 *and* 1797, *containing eleven acres.*

Names of Trees.	*No. planted Jan.* 1796.	*No. planted Feb.* 1797.	*Total Number.*	*Height when planted.*	*Cost of the Trees.* £.	s.	d.	*Remarks.*
Larch	3000	800	3800	2 feet	9	0	0	Grow well, having made shoots 2 feet this year
Scotch Tar	1000	200	1200	18 in.	1	17	0	Very healthy, and make strong shoots
Birch	1000	200	1200	2 feet	0	14	0	Grow well
Oak	215	1400	1615	2 feet	2	6	0	Healthy, but not luxuriant
Beech	300		300	2½ feet	1	6	0	Grow extremely well
Spruce Fir	200		200	2 feet	0	10	0	Do not appear to answer
Ash	200		200	2 feet	0	5	0	Thrive tolerably
Wych Elm	100	100	200	2 feet	0	16	0	Grow very well
Poplar	200		200	1 foot	0	2	0	Tolerably
Horse Chesnut	100		100	18 in.	0	6	0	Answer very well
Sycamore	200		200	2 feet	0	12	0	Alive, but make no great progress
Common Maple	100		100	2 feet	0	6	0	Only tolerably
Lime	50		50	2 feet	0	3	9	Tolerably
Platinus	50		50	2 feet	0	10	0	Land too cold, but alive
Spanish Chesnut	50		50	2½ feet	0	4	0	Ditto
Alder		100	100	2 feet	0	2	0	Answer very well
Weeping Birch		50	50	2 feet	0	3	6	Ditto
Crabs		50	50	2 feet	0	2	6	Ditto
	6765	2900	9665		19	5	9	
Quickwood - - - -					1	16	0	
Ditching 97 rood, at 10d. per rood -					4	0	10	
9665 trees planting, at 1s. 6d. per 100					7	5	0	
Hedge cutting, rails, winding with thorns, and other small expences					1	16	0	
224 oak-posts, at 6d. each - -					5	12	0	
370 rails, at 3½d. each - - -					5	7	11	
Total expence - - £.					45	3	6	

WE, the Minister, Chapel-Warden, and principal inhabitants of Flaxton, in the North Riding of the county of York, do certify, that we believe the annexed statement to be a true one, and that the trees mentioned therein are in a thriving and healthy state, and that the fences are in good order, and well secured by posts and rails.

As witness our hands, this 21st day of October, 1799.

ANTHONY GERMAIN, Minister.
WM. FAWCETT, Chapel-Warden.
W. LUND,
T. WRIGHT,
R. TENNANT,
H. MIDGLAY,
W. BURTON,
} Principal inhabitants.

WE, Robert Midglay and William Dawson, being the persons employed to plant the trees, set the quickwood, and do every other necessary business at the above-mentioned plantation, do hereby certify, that we did plant the number specified in the statement, during the beginning of the years 1796 and 1797, and that we have every year since been employed to keep the fences in proper order, and have planted several trees, to make up the deficiency of the few that have died.

As witness our hands, this 30th day of October, 1799.

ROBERT MIDGLAY,
WILLIAM DAWSON.

Obser-

Observations on the preceding Statement.

THE ground on which this plantation is made, is part of an allotment of sixty acres, which was granted, during the protectorate of Cromwell, to the then possessor, as his right on the common of Flaxton. After this event took place, the land was divided into fields of from eight to ten acres each, and several oaks set in the fences, most of which, of tolerable dimensions, have within these few years been cut down, and some yet remain; but the fences are nearly all gone to decay from neglect, and other causes unknown to the present owner. In the year 1792, a small piece of land was taken up, not much exceeding an acre, and planted with 1200 different kinds of forest-trees, the expence of which, with the fencing, amounted to 9l. 1s. 8d. This small experiment appearing to answer every expectation,

pectation, I was induced to make the plantation, as mentioned in the statement, on part of the above moor, the soil of which is a black sand, with a clay underneath, and not of more value to rent in its present state than 2s. 6d. per acre. The situation being low and wet, the whole, excepting two lands at the extremities, was, in the summer of 1795, ploughed, leaving the furrows open, that the roots of the trees might be kept as dry in the winter as the fall would admit.

The reason why the greatest number of oaks were planted the second year, was from an idea that the shelter afforded by the firs having obtained a year's growth, would greatly promote the growth of the oaks; and, in this supposition I have not been deceived, as in the plantation made in 1792, and which was last year joined to this, by another piece of land of about three acres then taken in. The oaks were there set

at

at the same time as the firs, but on one part were not mixed with them; and in that part they thrived so ill, as to make no progress, until some Scotch firs were planted among them; since which they have assumed a different appearance, and are now growing tolerably well. Another advantage, I have observed in planting, arises from having the holes made the year before the plants are put in: by this method the frost meliorates the sod, and makes it, particularly in bad land, finer, which encourages the fibres of the young plants to shoot more freely.

I have remarked that two lands in this plantation were not ploughed; and the reason that induced me to mention the circumstance, was the supposition that the trees would grow best upon the land that was ploughed. In this I have not been disappointed; those that were set upon the two lands not ploughed, having made less shoots than the other; and though they grow tolerably well, yet an evident,

evident difference is observable in the luxuriancy of their appearance, which certainly is an additional proof that ploughing the land, and making the holes the year preceding the planting of trees, is of material consequence in the success of an undertaking of this nature. In this statement notice has been taken of the plants that flourish best. The larch undoubtedly take the lead, a great number of them having this summer made shoots two feet in length. The Scotch firs are the next; the rest do very well, excepting the platinus, Spanish chesnut, and spruce fir. The land is certainly not sufficiently rich for the two former, and they were only planted to make a variety; but why the spruce fir does not prosper so well, being a hardy tree, can only arise from its dislike, probably, to a clayey soil, and its being too wet. The quickwood for the land grows remarkably well, which is in a great measure owing to its being well fenced with posts and rails, the latter wound with thorns,

thorns, and to its being regularly well dressed, dug, and cleaned, at least once a year. The trees planted the second year were not set to make up the deficiency of those which might fail the former season, the whole of the ground having, the two first years, been carefully looked over; and when any tree has been found dead, in general another has been substituted so as to preserve the usual number.

Should the above short remarks tend to benefit persons making plantations, it will be a great satisfaction to me; and I can only add, that if there is nothing new in the observations, at least there is nothing false; and I hope that the certificates which I have annexed, will be sufficiently satisfactory to a Society for which I entertain the highest esteem.

I remain, SIR,

Your very obedient servant,

Nov. 1, 1799. WILLIAM SMITH.

Mr. TAYLOR.

SIR,

I WAS honoured with your favour of the 2d instant; and in answer thereto, request you will inform the Society that the whole of the trees are planted in holes at about the distance of seven feet plant from plant; that the different species were intermixed, some attention being paid to plant them upon the soil which was thought best adapted to their growth; that the general width of the hole was nearly a foot square, the depth varying according to the size of the roots. Oak, ash, &c. have most commonly long tap-roots; the different kinds of fir have in general fibrous and spreading roots. The number of plants upon an English acre at seven feet distance, five score to the hundred, will be 889; which multiplied by eleven, the number of acres planted will make 9779 plants. In my statement I mentioned 9665, which makes a trifling difference. I am happy

happy in adding, that at present the plantation is in a very flourishing state; and I have the honour to be

Yours, etc.

WILLIAM SMITH.

Craike,
May 21, 1800.

Mr. CHARLES TAYLOR.

The

The GOLD MEDAL, or THIRTY GUINEAS, at the option of the Candidate, being the Premium offered for planting ORCHARDS, was this Session adjudged to Mr. JOHN LAKE, of Radfield, near Sittingbourne, in the county of Kent, from whom the following Account and Certificates were received, and who made choice of the pecuniary Reward.

SIR,

OBSERVING in the annual publication of the Society for the Encouragement of Arts, etc. an account of premiums offered to the person who shall have planted an Orchard after August 1796, in the most judicious manner, not less than four acres in extent; I request you to lay before the Society the following account of my performances, wishing both to coincide with the views

views of the Society, and acquire some reputation as an Orchardist.

With due regard to the instructions in the volume of the Society's Transactions, during the months of October, November and December, 1796, the land was prepared, and trees planted. No. 1 contains something more than six acres, and is chiefly a strong loam intermixed with flints; these have not been picked off, as from experience it is found to be a material injury to the land to do so. Nearly three acres of this field had been planted with hops two years; and the remaining part, a turnip fallow, was sown with wheat, after the turnips had been fed on the land by fattening sheep, who were likewise fed with oil-cake and beans, with a view to enrich the soil, which, though kindly, was considered as poor. All this was done, and the wheat sown previously to the trees being planted.

Observing too, that, in the Society's Transactions, attention to *shelter* is

strongly recommended, in the month of March following the whole was filled up with hops; this breadth of land being very well situated for this purpose, by plantations, already raised, of Spanish chesnut, ash, etc. on the south-east, and to the west an extended shaw of chesnut, the north and north-east being exposed. Thither I directed a plantation of hawthorn, which has taken good possession of the ground. On two acres towards the south, all are standards, planted thirty-two feet and a half asunder, making forty-one per acre. After this, in order to gain experience, and raise more shelter, I planted the remaining part, about four acres and a quarter, with standards, in a similar manner; then the rows, to this last-mentioned part, were filled up from south-east to north-west by two espaliers, or dwarfs, between each standard tree. The greater part of these dwarfs promise so well, that I have my doubts whether they will not outrun the standards. Be that as it may,

may, each is to be kept regularly pruned, so as not to intrude on the other, and, if possible, to be so left that the trees uniting shall form an actual hedge of fruit, feathering down to the ground. The whole of these standards and dwarfs are apples. I am sorry to observe, that I fell into an error in sowing wheat after the turnips, as the manure, left by the sheep, produced so luxuriant a crop, that the dwarfs on that part, about an an acre and a half, suffered very considerably, notwithstanding great pains were taken by hoeing and clearing the wheat plants several times to a considerable distance. The mischief produced was owing to the crop lodging entirely over the heads of the dwarf trees. They are now rapidly recovering.

N° 2. Farther still, as I have generally observed that when the hops are displanted, the fruit-trees experience a check for several years, and many are often irrecoverably lost; to be convinced of the best mode of raising an Orchard

with or without hops, I planted another at the same time with standards only (all apples), at the distance of two rods, forty trees per acre. This field contains something more than four acres; the situation at the distance of a mile from the other, in an adjoining parish. It has been arable land beyond memory; the soil a dry, hazely loam, to a great depth, and free from flints: it had previously been well cultivated and manured. I do not mention this Orchard as perfect; for, from being confined to a particular sort of apples, considerable difficulty arose in selecting the plants: but it is my opinion, that, twenty years hence, it will make a fine appearance.

For the purpose of guarding this plantation, a shelter of elm, chesnut, and willows, have been planted on the north and east points. The west is fully guarded by a thick elm hedge. Wishing to form each Orchard as near to perfection as possible, a regular attention has been paid to pruning, and likewise taking

taking away the bearing buds, so that no fruit has yet been produced. From the very beginning of this undertaking, I was assiduous in choosing what we deem the proper soil. The manual part has been conducted on the new system of close-pruning, cleanliness and care. The trees, from growing freely, have but very little tendency to moss. The few spots which have appeared this year, I intend to have washed away before the next spring, and likewise to make use of oil as a preservative against this evil.

I shall take due care to send up proper certificates of all the transactions; and should the Society deem my endeavours deserving their reward, I shall feel myself highly honoured by such mark of attention.

I am, SIR,

Your most obedient servant,

AN ORCHARDIST.

Oct. 31, 1799.

To the SECRETARY.

I, Bryan Faussett, of Sittingborne, in the county of Kent, Attorney at Law, having this day attentively examined and inspected two plantations of fruit belonging to Mr. John Lake, of Bapchild, one of which lying at Wood-Street (his own estate there), and the other on an estate belonging to Thomas Skip Dyot Bucknall, Esq. in the adjoining parish of Tonge, do hereby, for the information of the Society for the Encouragement of Arts, etc. certify, that the plantation No. 1, at Wood-Street, contains, according to an admeasurement thereof, taken by Mr. Hogben, now shown me, and hereunto annexed, in the whole six acres, thirteen perches; part thereof, containing four acres, one rod, seven perches, being planted with standard apple-trees at about thirty-two feet and a half asunder, in rows, in the direction from south-east to north-west, with two dwarf apple-trees

trees between each standard; and that all the trees, both dwarf and standards, appear to me to be in a very vigorous and flourishing state: and, as they appear remarkably healthy, and have made very fine shoots, they promise in a short time to be an extremely profitable Orchard. I also certify, that the other plantation, No. 2, in Tonge (called Pantrys), containing also, according to Mr. Hogben's admeasurement, four acres, one rod, thirty-six perches, is planted with standard apple-trees only, at the rate of forty trees on an acre, or thereabouts; and that those trees, though not to appearance in so vigorous a state as the others at Wood-street (which I imagine may be owing to the different state of cultivation, the one at Wood-Street being now planted with hops, and the other at Tonge being old corn land, and now in corn land), yet, nevertheless, they appear to be alike healthy, and the bark or rind of each remarkably smooth and clear,

and free from moss, as are the trees at Wood-Street; that great pains have been taken, and attention paid by Mr. Lake, to procure shelter to each of the plantations, by judiciously planting in the hedge-rows a quantity of ash, elm, willow, chesnut and hawthorn, on the cold sides thereof, which, no doubt, will be a great means to help the trees, and preserve them from the bleak cutting wind and blights. Given under my hand, this sixteenth November, 1799.

BR. FAUSSETT.

I, WILLIAM FAIRMAN, of Lynsted, in the county of Kent, Esq. a Member of the Society for the Encouragement of Arts, etc. have inspected the lands, fruit-trees, and live fences, belonging to John Lake, of Bapchild, Gent. and do certify, for the information of the said Society, that I find the two Orchards specified by Mr. Hogben, Land-Surveyor,

veyor, in a very growing and well-managed state; more particularly the dwarf and standard apple-trees, in point of vigour, in Orchard, No. 1, from its being in high culture as a hop-garden; and it is mentioned to contain six acres, lying in the parish of Bapchild. I must beg leave to observe that the system of planting two dwarfs between each standard, from this attempt, gives great encouragement to those who may inspect their progress, and desire to raise Orchards, as it very much obviates the discouragement many persons feel in being obliged to wait so great a length of time for the standards getting into bearing; as the dwarfs, if they are planted of a proper size, may be suffered to bear the second year, and will produce abundantly till the standards require the ground they occupy; which will be readily given up when they arrive at that size, as the dwarfs by that time will have completed their business, and the

the live-fences, which are now in so thriving a state, will then form a complete high shelter. I must beg leave further to certify, that a more skilful and attentive man could not be selected than Mr. John Lake to carry this system on to maturity, as you may depend on his ingenuity and perseverance.

WILLIAM FAIRMAN.

Miller's House,
December 5, 1799.

THIS is to certify, that we, whose names are underwritten, were employed by Mr. Lake, of Radfield, to plant upwards of ten acres of land with standard and dwarf apple-trees. The piece at Wood-Street, in Bapchild parish (about six acres), we planted first with standards, thirty-two feet and a half asunder, and with forty-one trees per acre, this distance best suiting the hop cultivation; for nearly half this land was already planted with hops, and the remaining

remaining part was planted the following spring. On something more than four acres of this land, we added, in the rows from south-east to north-west, two dwarfs between every standard, making eighty-two per acre. On the land called Pantrys, in Tonge parish, containing about four acres, we planted standards only, thirty-three feet asunder, and forty per acre. This land was sown with wheat previous to the planting. On the outside we planted a great number of young elms, willows, chesnuts, and hawthorns.

The whole was executed between the month of October, 1796, and the latter end of January, 1797.

JUSTINIAN CHAMPION, per *mark.*
WILLIAM CARPENTER, per *mark.*

Signed in presence of
WILLIAM LAKE, of Bapchild.

Nov. 16, 1799.

[A further account of Mr. Lake's Orchard, with an engraving thereof, will be found in a subsequent paper on Blight, by T. S. Dyot Bucknall, Esq. See *Plate VI.*]

The

The Sum of TWENTY GUINEAS, being the Premium offered for planting and drilling, between the first of December, 1797, and the first of April, 1798, the greatest quantity of Land, not less than ten acres, with BEANS, and having sown the same land with WHEAT in the same year, 1798, was this Session adjudged to JOHN CARTWRIGHT, Esq. of Brothertoft Farm, in the county of Lincoln, from whom the following Account and Certificates were received.

SIR,

THE inclosed Account and Certificates will explain, in as few words as perspicuity will allow, my culture of Beans and Wheat.

The soil was a hazle-coloured stiffish loam, worth about thirty shillings per acre per annum. In 1796 it had been fallowed

fallowed without dung, and sown with rape, which was eaten off by sheep. In 1797 I had oats on one earth, and in 1798 beans. The operation of sowing Beans began the 2d of February, and was carried with *sets* of ploughs, three ploughs in a set.

The ploughing was so arranged, that the seed was sown in every third furrow, which set the rows twenty-seven inches asunder. The plough, of course, turned over a flag of nine inches. One of the ploughs of each set was drawn by a pair of horses a-head, the other two ploughs by a pair of horses a-breast; and to one of the latter was attached Amos's Drill Apparatus, the coulter of which opened a drill, three inches deep, in the line of union between the flag then turning over and the preceding flag.

With a set of ploughs three in number, and so equipped, every practical farmer will know how to set his ridges, and how to turn every third flag with the drill-

drill-plough, with the least loss of time; as the next adjoining land will always find employment for one of the common ploughs, while it can be spared, after turning its first flag in a land, and until the other common plough, and the drill-plough, have set the ridge of the land, and sown the two first rows of Beans. The plough equipped with horses a-head, or what is termed *single*, is used for turning a narrow flag in the finishing of each land, and for making the water-furrows.

After thus ploughing and sowing, the land was harrowed three or four times, as it required that operation, more or less. The lands being only nine feet wide, I used three harrows tied to a pole of at least that length, so that the horses, drawing at its two extremities, walked in the open furrows, between land and land. After harrowing, the water-furrows were opened by the plough with horses going single, and finally gripped with

with the spade wherever it was necessary to a complete drainage.

As soon as the Beans showed themselves above ground, a one-horse roller was used, and after it light harrows; the horses being kept in the intervals between the rows of Beans. These operations, in some degree, destroyed the weeds, furnished earth to the Beans, and prepared the land for the use of the horse or hand hoe.

The subsequent management began with an old plough originally made nine inches wide, but for this purpose reduced to six inches. With this instrument passing close by the side of the Bean-rows, the earth was turned from them, and of course a ridge of loose earth was raised in the middle of each interval. The Beans thus left on a narrow ridge of earth, were well hand-hoed, and perfectly cleared from weeds.

As soon as the weeds were dead, the narrow plough was again used, and with one

one horse, whereby the ridge of loose earth above-mentioned was split, and part of it thrown to one row of Beans, and part to the other row. In two or three weeks afterwards the rows of Beans were cleared from weeds by hand-picking, and again earthed up by Amos's expanding horse-hoe. If the land had been stiffer, a strong double-mould-board plough would have been necessary for this last-mentioned operation, which finished the culture. In harvesting they were cut with a reaping-hook, and tied in sheaves.

Not having bands enough, which in this country are sometimes made of a species of slight reeds which grow in our ditches, and sometimes of straw, I learned from a labourer to tie the sheaves with the bean-straw. A neighbouring gentleman uses rope-yarn, and states, that by taking care of them while thrashing they will last three seasons.

In 1799, the land, clean and in good order, was sown with Wheat. Where weeds

weeds partially appeared, we scuffled the weeds, collected them with harrows, and burnt them.

Amos's Drill-Plough and Expanding Horse-Hoe are particularly described in his Theory and Practice of Drill-Husbandry, where his Drill Machine, of which I make great use, is likewise fully explained.

By setting the regulator of the Drill-Plough, the quantity of seed to an acre may, according the distance of the rows, be determined, as shown in this table:

Quantity of Seed per Acre.	*Distance between the Rows.*	*Revolutions of the Land-Wheel for one Pint of Seed.*
12 Pecks	20 Inches	18 Revolutions.
12	24	22
10	27	16
9	27	16
8	30	18

I remain,

SIR,

Your obedient Servant,

J. CARTWRIGHT.

Mr. TAYLOR.

I, William Amos, Agent to John Cartwright, Esq. of Brothertoft-Farm, in the county of Lincoln, do certify as follows, viz.

First, That between the first day of December, 1797, and the first of April, 1798, my said master sowed upon his said farm, in drills from twenty-seven to thirty inches apart, seventy acres with Horse Beans, at the rate of ten pecks of seed per acre, all which land was sown with Wheat in the said year 1798, except ten acres, which were again sown with Beans.

Secondly, That the operation of drilling began the second of February, 1798, and was finished the seventh of March, and was performed by means of a drill apparatus attached to common ploughs* (on

* Mr. Amos, for a particular account of his Plough and Drill Apparatus, refers to his publication on the Theory and Practice of Drill-Husbandry, printed for J. J. and G. Robinson, in Paternoster-Row.

(on a principle communicated by the undersigned to Arthur Young, Esq.) at an expence of about six shillings per acre, including a full ploughing, and harrowed at two shillings an acre.

Thirdly, That the said Horse Beans were horse-hoed four times, viz. twice skim-hoed, and twice earthed up, at an expence of four shillings and sixpence; hand-hoed once, at three shillings and sixpence; hand-weeded, at one shilling and sixpence; and gripped for about ninepence per acre.

Fourthly, That the said Beans were shorn at 9s. 10s. 10s. 6d. and 11s. per acre, averaging ten shillings per acre. The shearing commenced the twenty-seventh of August, and ended the eighth of September.

*Fifthly, That the produce was four quarters and a half, Winchester measure, per acre; the soil, in general, a pretty good loam, but some more clayey: it was from four to eight inches deep,

the substratum being partly fine sand and partly clay.

*Sixthly, That the straw being too coarse for cattle to eat, it was used as litter in the stables and fold-yards.

WILLIAM AMOS.

I GEORGE BAMBERGER, Clerk to John Cartwright, Esq. do certify, That I know the particulars marked * in the above Account to be correct, and have reason to be perfectly satisfied that all the rest are so likewise.

GEORGE BAMBERGER.

Nov. 1, 1799.

Mr. TAYLOR.

The

The GOLD MEDAL, or THIRTY GUINEAS, at the option of the Candidate, being the Premium offered for cultivating the TRUE RHUBARB, was this Session adjudged to Mr. THOMAS JONES, of Fish-Street-Hill, from whom the following Account and Certificates were received, and who made choice of the pecuniary Reward.

SIR,

THE Certificate which accompanies this communication, will inform the Society that I have planted, in the year 1799, four thousand and fifty-three plants of the Rheum Palmatum, or true Rhubarb; I once more, therefore, present myself as a claimant. Each time I have made my appearance in this character, I have pledged myself to future and more considerable exertions; for every distinction with which they

have honoured me, has been viewed in no other light, than that of a powerful incentive to perseverance; and I need not add, how much gratification it will afford me, if the Society, by their decision on the present occasion, continue to me their good opinion.

The period I have devoted to the cultivation of this valuable drug has now become of a sufficient length to prove experimentally the truth or falsehood of my theories. Happy am I in reflecting, and happier still in communicating to the Society, that since I last had the pleasure of addressing them, I have additional reason for satisfaction. In my former papers (see Transactions of the Society, Vol. XI. XV. and XVI.) having been, perhaps, more than sufficiently minute in describing my system of cultivation, I shall now only notice the nature of the soil and aspect; the former of which is a rich sandy loam, and the aspect inclining to the east and south: and, as the public

lic are in complete possession of the opinions upon which it is founded, there is no occasion to repeat every particular point in the present instance. I shall therefore content myself with merely mentioning some, and enlarging upon others, as necessity may require.

Conceiving it to be good policy for a man to avail himself of every advantage that is presented, I have recommended spring as well as autumnal sowings, and the plants of each, when arrived at a proper size, to be placed in the nursery-bed, at its opposite season. I persevere in this practice, lest the summer, in proving too dry, should be equally detrimental as too wet a winter: but as draining the seed-beds may be so easily effected, and the safety of the plants necessarily ensured; so now, without on any account neglecting the former, I principally depend on the latter sowing for a succession: besides, it is attended with the least trouble and expence; and if

throughout the operation is well attended to, success is nearly reduced to a certainty.

Again, I have somewhere observed, that a proper mode of cultivation would greatly facilitate the cure of this root; in other words, good management will ensure its welfare till its arrival to a proper age: and that this has ever appeared to me of the most absolute necessity, I have never failed to represent. By nothing else can it acquire that degree of woodiness, in which I suspect the principal secret of its cure consists. Age too is necessary to give the plant its proper growth; otherwise, when it undergoes the operation, its pieces will be diminutive, insignificant, and unprofitable. Above all, it is entirely indebted to age for its medical virtues; and I firmly believe, that to this, more than to soil or situation, it is owing that Turkey has been considered superior to the English Rhubarb.

In this place permit me to introduce an opinion that I have for some time entertained

tertained, viz. that those parts of the root are of the finest quality that are the farthest removed from the seed. This difference is easily discoverable from its earliest stages; and so assured am I of the fact, that, but for want of a supply of offsets, and one or two other considerations, I should be almost tempted to abandon my present, in favour of this mode of cultivation. But though, in this respect, the Rhuburb is evidently superior, yet it should be recollected that the other is less precarious, and its growth and produce much more considerable.

Although, according to every public testimony, of which mention will presently be made, I have reason to believe my progress has been more considerable than that of my contemporaries, if there are any, yet I have no conception that we have arrived at the *ne plus ultra*. Let us rather hope, that every succeeding year will be productive of a degree of improve-

improvement proportionate to the advantages of increased experience. As we are so much indebted, therefore, to the age of our plants, let me caution all who have, or may engage in this undertaking, never to yield to impatience; for, with a few persons, the prejudices against the English Rhubarb are many, and deeply rooted; and to this source most of them may be traced. Nor is this very wonderful; for to entertain high expectations of Rhubarb prematurely taken up, is no less extravagant, than to suppose the capacity of a child equal to that of an adult: yet hitherto our market is a stranger to any other than such a commodity.

Another cause may, I conceive, arise (notwithstanding the length of time since the introduction of the palmated, or true sort, into this kingdom, and all that has been written on the subject), from the little or no care that seems to have been taken in selecting and planting it. As

a

a proof of this, it is not many days since I saw a considerable quantity, and neither the purchaser nor planter knew it to be the rhapontic. In justice, however, to medical gentlemen in general, but in particular to those I have consulted upon this subject, I have found them better informed, and liberal to the greatest degree. They entered at once into the views of the Society, and their assurances of co-operation have been fully realized. That I never expected to introduce it into general practice without opposition, is evident from my last papers in 1798; for I there remarked, that very probably, before this could be effected, certain difficulties must be overcome, the principal of which I apprehended to be an almost universal prepossession in favour of foreign commodities. Moderation on the part of the cultivator in the regulation of his prices, and an unwearied attention to its quality, are the only means likely to produce a counteraction. To great atten-

attention to these points I attribute all my success. Mere recommendation ought ever, in such a business as this, to be placed out of the question. If the article will not bear the tests of examination and trial, it should not be indebted to any thing else.

Whenever I have submitted any specimens to public examination, at an hospital or elsewhere, my constant language has been, "I have no wish but that they may rise or fall according to their own intrinsic merit or demerit; and if worthy of approbation, by this mean induce their general adoption. That this being, no doubt, the ultimate object of the Society of Arts, who have thought proper to honour me with several distinctions, I feel myself impelled to forward it to the utmost, and not remain contented with its mere cultivation." I have proceeded to state the great expence this country incurs by so large an importation, and on this account urged its general

general adoption, in order to lessen the expence on the score of duty. That although I am influenced by such motives, and many others, yet my own individual interest I have at the same time fairly acknowledged to be among the the number; and I have concluded with expressing an hope, that while pleading the general as well as my own particular cause, perhaps the benefit of their institution may be the necessary consequence of introducing a valuable and efficacious medicine, at a comparatively trifling expence. I have never yet made this appeal in vain; and the Society will, I dare say, receive with much satisfaction the intelligence that Rhubarb of English growth is now used at Guy's (I mention the hospitals in the order of its introduction), St. Thomas's, and St. Bartholomew's; and is under trial at several others. Still further to inform myself of the public opinion, I lately requested an interview with a numerous and most respectable com-

committee at Apothecaries-Hall: it is impossible, without a breach of propriety, to repeat the compliments its members were pleased to pay me. Whether I deserve them or not, it would be equally improper in me to determine; but of this the Society may be assured, I never will rest till I do. In a word, my purpose was fully answered. The article which I exhibited met with the most unqualified approbation, and full permission was given to publish this circumstance. I beg leave, before I conclude, to apologize for the egotism which prevails throughout this communication. It is scarcely possible to avoid it, when, in cases like the present, a man is under the necessity of speaking of himself.

It is a subject I have much at heart, and it would give me much real concern to keep back a single circumstance likely to be useful to future adventurers. Its production and adoption, with the attendant difficulties, have been to the best

best of my abilities amply considered; the former in the communications beforementioned, the latter in this paper. If the Society are of opinion that the steps I am pursuing to effect this last and desirable purpose deserve success, it will be highly flattering. Under their auspices I commenced my plantation eight years ago, and I hope and trust my proceedings since have been such that the purpose to which it has been appropriated will occasion no regret.

I am, SIR,

Your very humble Servant,

THOMAS JONES.

No. 13, *Fish-Street-Hill.*

Mr. CHARLES TAYLOR.

This

THIS is to certify, That Mr. Thomas Jones, of Fish-Street-Hill, London, has planted four thousand and fifty-three plants of the Rheum Palmatum, or true Rhubarb, in a piece of ground which he rents in this parish.

They were planted in the year 1799, at four feet distance from each other, and have been in a very flourishing state through the last summer.

PETER LEVESQUE.

Enfield,
Feb. 8, 1800.

SIR,

I HAVE taken the earliest opportunity of answering your letter. I can assure you that I have planted for Mr. Thomas Jones, of Fish-Street-Hill, in the parish of Enfield, four thousand and fifty-three plants of the Rheum Palmatum, or

or true Rhubarb, all which are in a healthy state, as is well known to the inhabitants of Enfield, as well as myself; and I flatter myself finer plants never were seen. No expence has been spared in raising such a great number of plants.

I am, SIR,

Your obedient Servant,

JOEL ROWSELL,
Gardener.

Enfield,
March 13, 1800.

SIR,

IN answer to your request respecting the Certificate of Mr. Jones, I beg leave to inform the Society that the signature attached to it is mine. In the course of last summer, I had frequent opportunities of seeing the plantation, which, from its singular beauty, not only attracted my observation, but that of

all the neighbourhood. I have witnessed the progress Mr. Jones has made in the cultivation of Rhubarb from its commencement, for I believe that the first plants which he produced were raised in my garden.

I am, SIR,

Your humble Servant,

PETER LEVESQUE.

Chase Side, Enfield,
March 12, 1800.

Mr. CHARLES TAYLOR.

The

The GOLD MEDAL, being the Premium offered for improving WASTE MOORS, was this Session adjudged to JOHN MIREHOUSE, Esq. of Brownslade, in the county of Pembroke, from whom the following Account and Certificates were received.

GENTLEMEN,

I TAKE the liberty of laying before you the particulars of an improvement effected by me in a distant county, upon a tract of ground of two hundred and seventy-four acres, heretofore a common, and so drowned by total neglect, as to be of no value to the public (unless the grazing and starving a few cottagers cows on its borders can be deemed such), but often in a dry summer proved an inconvenience to the neighbourhood.

The Lord of the manor in which this land is situated, having himself the prin-

cipal right in it, obtained from his copyholders, a few years since, the exclusive property for a very trifling consideration, they never having derived any advantage from it; and for his better security he obtained an act of parliament for its inclosure and drainage.

The land lies between two hills; is about two miles in length, and about a quarter of a mile in breadth; is very flat, and about a quarter of a mile from the sea. The upland water flowing upon it in various places, and having no outlet or passage to the sea, it became a morass inaccessible to cattle, except on its borders. The land lying between it and the sea is an entire sand, through which, in the course of the summer, much of the water made its escape; and, in the winter, frequently flowed over the surface of the sand to the sea-beach, where, having been insulated till it ran over the beach also, it at length forced a passage, which, in the course of a few tides, was completely closed again.

In

In this state the land has probably continued for ages. In the course of the summer it produced sedge and coarse grass, which, dying in the winter, formed a surface, that, when cut, appeared to contain nothing but vegetable substance. Of this surface nearly three-fourths of the whole consisted: the remainder (being the borders adjoining to the high land), having received the waste from them, is raised above the level. This was of course less wet, and contains a fine rich mould of various depths, from one to three feet, below which, in some parts, clay is found, in others, the vegetable substance before described, and in nearly the same state. In the interior of the flat this substance continues to a great depth; indeed, no bottom has yet been found.

The Lord of the manor having obtained his act of parliament, my residence being within a mile of the common, I

proposed to take a lease of it, and bring it into cultivation, provided he would on his part undertake the expence of cutting a drain from the lower end of the common to the sea beach, and of laying down a tunnel through it, according to my directions, by which a regular discharge of water might be obtained. This being effected, and the tide properly guarded against, my lease was settled, and I immediately proceeded in the drainage.

I began by forming the channel on the north side, and by dividing the land into twelve pieces (according to the plan sent herewith) by double ditches of such depths as the fall would allow, from a few inches to four feet. Between the ditches, a space from thirty to forty feet was left for planting willow, (this is successfully executed), as well for shelter as for other purposes. The land, being saturated with water, appeared a perfect sponge, and, as the drains began to take effect, sunk

sunk prodigiously; so that, after repeatedly lowering the ditches from the very tunnel upwards, the surface of the water remained at the same, or nearly the same distance from the surface of the land. Having, however, repeatedly sunk the principal drains and ditches, I at length obtained, about three feet from the water to the surface of the land, *in the lowest parts*, and in others a level fully sufficient for all my purposes.

The cross ditches empty themselves into the drain on the north side, as far as the letter A on the plan. At this point it became necessary, from the low level of the middle parts of No. 8, 9, to close the north end of the ditches, to keep out the flood; and an internal drain was made, in consequence thereof, through the lowest point of these pieces (as described in the plan), unconnected with the principal drain above, but discharging itself into it at the lower point.

The common being thus inclosed and divided, and the ditches being of sufficient depth, I proceeded to drain each division by small internal cuts, about twenty inches wide at the top, of various depths, to three feet and a half, bringing them to six inches in the bottom; leaving those open which were in the direction of the plough, and filling up others with brushwood, which interfered with it, or with the sod which had been cut out of them as a hedge, and, being placed lower in the drain, left a hollow in the bottom. Both these drains answer to my entire satisfaction, and the whole of the land is brought into cultivation. I have expended in this undertaking the sum of five hundred and eight pounds, as certified by the person through whose hands the payments were made to the labourers and others.

The course of husbandry which I pursued, I have particularly described in a memorandum annexed, and numbered as

as the pieces in the Plan; but I beg leave to remark, that the crops of coleseed, as a winter food for sheep, have generally been very fine, and have enabled me to feed great numbers of sheep in the months of January, February, March, and April, and to make them more fat, and in less time, than I have ever been able to do on turnips of the best quality upon my home grounds. The crops of wheat likewise have been very good, and the grain weighty; but the crops of barley and oats have rarely succeeded to my satisfaction. The land on the whole, from being of no value, is already very productive, and will probably, in a short time, become the most valuable meadow of the neighbourhood. The vegetable substance, by being drained, is become a fine luxuriant black mould to the very surface of the water, and grows daily less spongy and more adhesive.

If the Society for the Encouragement of Arts, &c. should be of opinion that my exertions are deserving their attention, I shall consider myself as highly honoured.

I have the honour to be,

GENTLEMEN,

Your most obedient
humble servant,

A PRACTICAL AGRICULTURIST.

January, 28 1800.

To the Society for Encouragement of Arts, &c.

Particulars

Particulars of the Husbandry adopted in each Division of the Land improved by a Practical Agriculturist.

See Plan annexed

THIS piece lies on the highest level, and consists of a rich earth washed from the adjacent country. It is drained as the lines are dotted. After once

1794 ploughing, it was sown with oats,

1795 and again with oats after two ploughings, and sown with grass-seeds.

1796 The season turning out very wet, it was much poached by cattle, and therefore ploughed

1797 up in the winter, and brought into order for barley. The produce, a fine crop.

1798 Drilled beans three feet apart; the crop but indifferent, but in

1799 good order for wheat; and the wheat-

wheat-crop very fine, notwithstanding the season.

1800 Ploughed up, and prepared for cole-seed.

No. 2. This division was very wet. It had obtained but little of the wash from the country; but having a good fall to the north, was drained, as described, having also other smaller drains covered, and emptying themselves into those that were parallel. Having been formerly cut for fuel by the adjacent poor, it was full of holes. Levelled and pared the surface with a fen-plough from Cambridgeshire; and having well burnt

1795 it, sowed it with cole-seed, which being eat off by sheep, after once ploughing, it was sown with bar-

1796 ley and Dutch clover. The former was a fine crop; but the corn lean. Grazed the clover, which being almost choaked with the natural

1797 natural grass, was ploughed up, and (after one ploughing only) sowed with wheat. This produced a slight crop, but fine and
1798 heavy grain. In the succeeding spring, got into good condition,
1799 and burnt it slightly, and sowed with cole-seed; a good crop al-
1800 ready eat off, and preparing for spring wheat.

No. 3. Equally wet, and in the same state with No. 2. Drained, as described in the plan; but with other intermediate covered drains.

1795 Levelled and sown with cole-seed; a good crop, and, after
1796 once ploughing, sown with oats and Dutch clover: the oats a moderate crop; the clover better
1797 than No. 2, but was soon choaked by the natural grass; continued and remains in grass.

No. 4. Very wet; drained as before, but much of the ground covered with

with water; has never been ploughed; produces good crops of hay (a small part of it having been cut for fuel). It is intended
1800 to be burnt, and sown with cole-seed this year.

No. 5. Three-fourths of this piece remarkably good; the whole in grass; and the remaining fourth being uneven, will be burnt and sown with cole-seed this year. Both these pieces are well drained.

No. 6. Drained as before. Was well
1798 burnt and prepared for cole-seed, and after being eat off by two hundred sheep, and making them
1799 very fat, was sown with barley.—Great bulk—but the corn lean, and hurt by the wet harvest.—Late in the season, the weather allowing, it was twice ploughed,
1800 and sown with wheat in good condition, and now promises remarkably well.

No. 7.

No. 7. Drained as before, but with more labour. — Prepared and
1796 burnt for cole-seed.—The produce abundant. — After the cole-seed was eat off, it was sown with
1797 spring-wheat the 20th of February. The crop appeared good during the summer; but the season being wet, it did not ripen well, after two ploughings.—Sown
1798 with barley—great bulk, but lean corn. — Prepared and slightly
1799 burnt for cole-seed.—The crop was great as before, and at this time supports three hundred and thir-
1800 ty-four sheep. It is intended for oats and seeds.

No. 8. This division was very wet, and required much labour of drainage. The land becoming more flat, the fence-ditches no longer empty themselves into the principal drain. A cut is made from the ditch at A, in the lowest part of

of the land parallel to the principal drain, which receives the water from the smaller drains, as described. It was partly sown
1796 with oats, and partly fallowed (but imperfectly), and the whole
1798 sown with wheat in the autumn, and turned out a better crop than I had reason to expect. It was
1799 afterwards completely drained, and got into excellent condition
1800 for wheat last autumn, and now promises remarkably well.

No. 9. Very wet and very rough; was
1798 prepared and burnt for cole-seed,
1799 and succeeded by barley after two ploughings.—Both crops tolerable, but the barley lean, as before stated. It was at the same
1800 time sown with Dutch clover and rye-grass, and promises well.

No. 10. This piece lies lower than any other part of the flat, and was originally almost entirely covered with

with hillocks of hassock, many of which were three or four feet in height (several of the other pieces had likewise many of these hillocks which contained no soil or earth, but were accumulated sedge and coarse grass). It was with much labour burnt, and got
1796 into order for cole-seed.—Produced a fair crop; was sown
1797 with oats and grass-seeds, and continued in pasture. The whole is now become a black earth, and
1800 carries a great deal of stock; but it has not been mown.

No. The level of these two grounds
11, 12 rises from No. 10 to the extremity of the flat, and is consequently much dryer. Both these grounds
1797 were prepared and burnt for cole-seed, and in the succeeding spring
1798 sown with oats and barley—the
1799 crops good: after three ploughings were again sown with spring-

corn, Dutch clover, and rye-grass. The crop was but indifferent; but the seeds promise well.

A PRACTICAL AGRICULTURIST.

Jan. 28, 1800.

I HEREBY certify, that the land reported by "A Practical Agriculturist," to the Society for the Encouragement of Arts, &c. was a common surveyed by me previous to its being inclosed; that it comprises two hundred and seventy-four acres, or nearly, of which one hundred and seventy-three are now pasture, and one hundred arable; that when surveyed it was a morass, and so overflown with water, that I could not finish the survey without additional trouble, from being unable to go over it;—that the plan, proposed to accompany this account, is a copy of my original survey, with the addition of the ditches

ditches and fences since made;—that from being totally unprofitable, and for the greatest part inaccessible to stock, it may be considered as an entirely new creation, being drained, and in the cultivated state described in the Plan;—and from my knowledge of its original state, and its present condition, that the sum of 500l. stated to have been expended, has been well and judiciously disposed;—and that, if occupied in one holding, it would let at an average rate of fifteen shillings per acre; but if let to the farms adjoining it, in small lots (for which it is peculiarly adapted), for considerably more; and that, after a very few years, its value will be greatly increased by the solidity which it will attain, and the continuation of the system pursued for its improvement.

JOHN HAND.

Jan. 15, 1800.

I HEREBY certify, that the land reported to the Society for the Encouragement of Arts, &c. by the gentleman whose signature is "A Practical Agriculturist," is situated in the parish of which I am Vicar; that, previous to his undertaking the improvement, it was a common totally unprofitable from its being generally inundated;—that it is now in a fine state of cultivation—produces good crops, particularly of coleseed and wheat—keeps a considerable number of cattle when depastured, and yields abundant crops of hay;—and that this important improvement has been effected by the gentleman above alluded to, of which, from my local situation, I have been almost a daily observer.

CHARLES PIGOTT PRITCHETT, Vicar.

Jan. 24, 1800

Mr. TAYLOR.

PLAN

No. I.	
1794	Oats
1795	Ditto
1796	Grass Seeds
1797	Barley
1798	Beans
1799	Wheat
1800	Fallow

No. II.	
1795	Cole-seed
1796	Barley
1797	Clover
1798	Wheat
1799	Cole-seed
1800	Spring Wheat

No. III.	
1795	Cole-seed
1796	Oats
1797	Clover
1800	In Grass

No. IV.
In Grass

No. V.
In Grass

No. VI.	
1798	Cole-seed
1799	Barley
1800	Wheat

No. VII.	
1796	Cole-seed
1797	Spring Wheat
1798	Barley
1799	Cole-seed

No. VIII.	
1797	Oats and Wheat
1798	Wheat
1799	Fallow
1800	Wheat

No. IX.	
1798	Cole-seed
1799	Barley
1800	Grass Seeds

No. X.	
1796	Cole-seed
1797	Oats
1798	Grass Seeds

No. XI.	
1797	Cole-seed
1798	Oats
1799	Ditto
1800	Grass Seeds

No. XII.	
1797	Cole-seed
1798	Barley
1799	Oats
1800	Grass Seeds

PLAN OF LANDS

In the County of Pembroke,

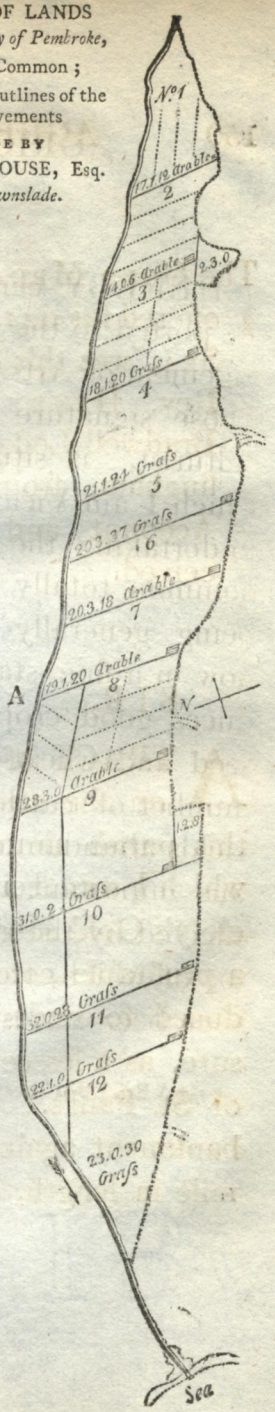
Lately Common;

With the Outlines of the Improvements

MADE BY

J. MIREHOUSE, Esq.

Of Brownslade.



The GOLD MEDAL, being the Premium offered for GAINING LAND FROM THE SEA, was this Session adjudged to the Rev. HENRY BATE DUDLEY, of Bradwell-Lodge, in the parish of Tillingham, from whom the following Account and Certificate were received.

SIR,

A TRACT of land which I inclosed on the same line of coast within this parish about eleven years ago (for which I was then honoured with the Society's Gold Medal), being already under a profitable course of tillage, I was induced to undertake the present inclosure, as a lessee of the collegiate estate of St. Paul's. The front line of embankment against the sea is nearly one mile in length, and, with the returning banks

banks on each wing to the old wall, forms an inclosure of contents, as expressed in the certificate already in your possession. The whole of the embankment is composed of earth alone, borrowed from the irregular salting land in the front, called *chatts*, and taken at the limited distance of twelve feet from the base of the new work, to leave a sufficient foreland for its protection. I found, from experience in my former embankment, that I had not given it a sufficient angular declension in front, for an easy ascent and descent of the waves. This error was therefore corrected in the last work. I began it on a base of thirty-two feet, and wrought it to the height of seven feet, leaving it a plane of five feet on the top, and making the land side of the embankment, as nearly perpendicular as the security of the base would allow.

Within, on the land-side, is cut a ditch twelve feet wide, five feet deep, and four feet at bottom; the earth from which

was thrown into the mound. My former sea-embankment in Bradwell parish had nearly given way to the great inundating tide of February 1792, from this erection of new earth being made on the surface. To guard against similar danger in the present work, a spit-deep trench, six feet wide, was previously cut along the centre of the whole line, on which the mound was to rest; this, by admitting the new earth into an incorporative adhesion with the base soil, renders a future separation almost impossible. Before this, the main rills had been filled and rammed, to give these parts equal solidity with the rest.

The whole operation was performed by a gang of twelve sea-wallers, with barrows and planks only, at one pound ten shillings the marsh rod of twenty feet, and perfectly inclosed in seven months: but it must be observed, that the soil, composed of rich vegetable matter, is without one particle of stone

or

or gravel, and cuts with an iron-edged scoop-tool, so as to load the barrows with great facility. At each end of the front line is laid an out-fall gutter, or sluice, through the whole embankment, five feet in width, by three feet deep, clear in the run; and another of smaller dimensions in the centre, for discharging the land-waters freely to sea. The construction of these aqueducts is too well known to require further description here: probably, however, the little addition given to those erected on this occasion, may be found of some use. Observing it often happen, that, either from accident or design, the outward lid of the sea-sluices remained open, and admitted the tide to the great injury of the fresh waters within the marshes, I introduced here a light fly-lid within the centre of each sluice, which is out of reach, and yields to the slightest pressure of the water going out; but shuts closely against that of the tide, when it passes inwardly

inwardly the external flap. These sluices are laid upon as solid a foundation as can artificially be made on such soils, to prevent the crabs, and other sea-fish, from undermining them, which must otherwise be the case. The frame and flooring are of fir, which lies under water as durably as oak.

The land thus inclosed is partitioned into four nearly equal parts, by new out-ditches, twelve feet wide, five deep, and four at the bottom, which, with small intersecting rills from various parts, give the whole a good drainage of its salts, on the fall of heavy rains: and, by a course recently made from a distant brook, each division of this land is now amply supplied with fresh water. Not less than eight hundred South-Down sheep, and from sixty to eighty horses, are almost constantly grazed, and even winter thereon remarkably well. The establised opinion of the best farmers of the country, was, that land thus taken from the sea would

would not grow corn under thirty years at least after their inclosure. But as no experiment had been made, by which this fact could be clearly ascertained, as soon as I had shut out the sea from a part of it, about six yards square were immediately dug, and sown with horse-beans and oats, which, though the summer proved very dry, and consequently unfavourable, produced of each a fair return of sound, good corn; and the last harvest the same spot being sown with wheat, yielded an excellent crop. The next spring I mean to try it with barley and turnips. My first inclosed lands in this parish have produced two succeeding crops of fine oats, and are now growing a very promising breadth of rape for seed.

It may here be remarked, that the lower oozy parts of the new inclosure, on which no vegetable ever grew before, begin to be coated with various grasses; and as the saline parts die away in other spots,

spots, for want of their natural moisture, fresh grasses replace them, so that the whole is now nearly covered with grazing plants of good quality, amongst which appear the different *clovers*, *trefoil*, and *rye-grass*, &c. Hence I conclude, but contrary to the general opinion, that though all these grew artificially from seed sown, it does not follow of necessity that they cannot be produced without. I think that the natural operation of the sun and air upon certain soils, will alone effect it; and my experience in lands taken from the sea, confirms very strongly this opinion.

I have the honour to be

Your most obedient servant,

HENRY BATE DUDLEY.

Bradwell Lodge,
December 17, 1799.

Mr. TAYLOR.

THIS

THIS is to certify, that the Rev. Henry Bate Dudley, of Bradwell Lodge, in this county, has this year completed an embankment, with all the sluices and other necessary works appertaining thereto, within this parish, and has thereby effectually obtained two hundred and six acres of land from the sea, which he has subdivided, by twelve-feet ditches, into four spacious marshes.

J. H. WRIGHT,
Minister of Tillingham.

Tillingham, Oct. 1, 1799.